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REMARKS

Favorable reconsideration is requested in view of the above amendments and following remarks. Claims 1 and 7 have been amended. The limitation in claim 1 concerning the steps of separating a water phase from the treated substances and subjecting the water phase to methane fermentation is supported for example by previous claim 6 and page 6, lines 11-13 of the specification. Claim 6 has been canceled without prejudice or disclaimer. Claim 7 has been amended editorially. Claims 1-5 and 7-14 remain pending in the application.

Claims 1-8, 12 and 13 are rejected under 35 USC § 102(b) as being anticipated by Matsuzawa et al. (JP 2002-066507). Applicant respectfully traverses this rejection.

Claim 1 is directed to a method for producing methane gas from organic wastes. Claim 1 requires separating a water phase from the treated substances and subjecting the water phase to methane fermentation. The steps required by claim 1 allow methane fermentation to be carried out in a short time with high digestion efficiency (see page 6, lines 13-15 of the specification).

Matsuzawa is directed to a method for treating organic solids. The reference discloses treating organic solids within the treating device 1 to slurry the organic solids insoluble in water (see paragraph [0010]). The slurried organic solids are then introduced into a solubilizing treatment device 3 where the slurried organic solids are subjected to a hydrothermal treatment under high temperature and pressure conditions (see paragraph [0011]). The solubilized substance is then introduced into an anaerobic treating vessel 4.

The reference discloses that the anaerobic treating vessel 4 contains sludge having anaerobic microorganisms, so that when the solubilized substance is added to the anaerobic treating vessel 4, the organic material within the solubilized substance is subjected to methane fermentation (see paragraph [0015]). The reference further discloses that the methane gas generated then is recuperated as clean energy (that is, methane gas without chlorides), whereas the effluent after the anaerobic processing is discharged in a state including the sludge to a solid-liquid separation device 7 (see paragraph [0022]). The effluent then is subjected to solid-liquid separation within the solid-liquid separation device 7 (see paragraph [0023]).

It can be clearly understood from the above description that the solid-liquid separation occurs after the methane fermentation, and thus what is being subjected to solid-liquid separation is the liquid waste derived from the methane fermentation, as opposed to the solubilized substance derived from the hydrothermal treatment within the solubilizing treatment device 3.

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On the other hand, claim 1 requires treating organic wastes with at least one of supercritical water and sub-critical water to convert the organic wastes into low molecular weight substances; separating a water phase from the treated substances, and subjecting the water phase to methane fermentation.

As such, claim 1 requires subjecting a substance obtained by a treatment with at least one of supercritical water and sub-critical water to solid-liquid separation, as opposed to subjecting a treated substance obtained after methane fermentation to solid-liquid separation. Nothing in the reference teaches or even suggests the step of separating the water phase from the solubilized substance so as to achieve high digestion efficiency during methane fermentation. Accordingly, claim 1 and the dependent claims therefrom are patentable over Matsuzawa.

Claims 1-3, 4-8 and 12-13 are rejected under 35 USC 102(b) as being anticipated by Yamashita et al. (JP 2002-102897). Applicant respectfully traverses this rejection.

Yamashita is directed to a method for treating organic food wastes insoluble in water. The treatment method includes subjecting organic waste such as waste yeast to a hydrothermal reaction treatment within a hydrothermal reaction treatment apparatus 2 to liquefy the organic waste. The liquefied hydrothermal reaction treated matter is then introduced into an anaerobic treatment apparatus 3, where the contents are subjected to methane fermentation (see paragraph [0014]). Yamashita further teaches that the treated material after the anaerobic treatment is subjected to solid-liquid separation where necessary. Thereafter, the liquid part is introduced into the discharge processor 4 (see paragraph [0015]).

It can be clearly understood from the above description that in the method disclosed by Yamashita, the solid-liquid separation occurs after the methane fermentation, and thus what is being subjected to solid-liquid separation is the treated material derived from the methane fermentation, as opposed to the liquefied hydrothermal reaction treated matter derived from the hydrothermal treatment within the hydrothermal reaction treatment apparatus 2.

On the other hand, claim 1 requires treating organic wastes with at least one of supercritical water and sub-critical water to convert the organic wastes into low molecular weight substances; separating a water phase from the treated substances, and subjecting the water phase to methane fermentation.

As such, claim 1 requires subjecting a substance obtained by a treatment with at least one of supercritical water and sub-critical water to solid-liquid separation, as opposed to subjecting a

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treated substance obtained after methane fermentation to solid-liquid separation. Nothing in the reference teaches or even suggests the step of separating the water phase from the liquefied hydrothermal reaction treated matter so as to achieve high digestion efficiency during methane fermentation. Accordingly, claim 1 and the dependent claims therefrom are patentable over Yamashita.

Claims 1-3, 5-8 and 11-14 are rejected under 35 USC 102(b) as being anticipated by Harada et al. ("Catalytic Wet Oxidation Process for Wastewater Treatment"). Applicant respectfully traverses this rejection.

Harada is directed to a wastewater treatment including the use of a solid catalyst. The reference discloses treating wastewater under high pressure and temperature (see pages 2-3). The reference further discloses that the contaminants within the wastewater can be partially treated by a catalytic wet oxidation process and then processed by an anaerobic treatment method (see page 5). In particular, the reference teaches subjecting the substance obtained after the catalytic wet oxidation process to solid-liquid separation (see page 6 and Figure 7). The separation step involves attempting the solubilization of the sludge decomposition and the low molecularization of the recalcitrant organic material, separating only those substances below a fixed molecular weight using a separating membrane, and then subjecting the separated substance to methane fermentation (see page 6).

However, nothing in the reference teaches or even suggests separating a water phase from the treated substances resulting from treating organic wastes with at least one of supercritical water and sub-critical water. Moreover, nothing in the reference teaches or even suggests subjecting the water phase separated from the treated substances to methane fermentation so as to achieve high digestion efficiency. Accordingly, claim 1 and the dependent claims therefrom are patentable over Harada.

Claims 1-3, 5-8 and 11-14 are rejected under 35 USC 102(b) as being anticipated by Inoue et al. ("Developing Wastewater Recycling Technologies by Catalytic Wet Oxidation Process"). Applicant respectfully traverses this rejection.

Inoue teaches combining a catalytic wet oxidation process with an anaerobic process. In particular, the reference teaches subjecting sludge to a catalytic wet oxidation process, attempting the solubilization of the sludge decomposition and the low molecularization of the recalcitrant organic material so as to convert the sludge to easily decomposable organic material,

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separating the easily decomposable organic material using a separation membrane, conducting methane fermentation, and then collecting the methane gas (see page 3).

However, nothing in the reference teaches or even suggests separating a water phase from the treated substances resulting from treating organic wastes with at least one of supercritical water and sub-critical water. Moreover, nothing in the reference teaches or even suggests subjecting the water phase separated from the treated substances to methane fermentation so as to achieve high digestion efficiency. Accordingly, claim 1 and the dependent claims therefrom are patentable over Inoue.

Claims 9-10 are rejected under 35 USC 103(a) as being unpatentable over any one of the primary references above. Applicant respectfully traverses the rejection.

Claim 1 has been distinguished above. Claims 9 and 10 depend from claim 1, and are patentable over the references for at least the reasons discussed above.

Moreover, nothing in the references teaches or even suggests obtaining a carbon digestion efficiency in the methane fermentation of 90% or more by separating a water phase from the treated substances, and subjecting the water phase to methane fermentation. Accordingly, claim 10 is further removed from the references for at least this reason.

In view of the above, favorable reconsideration in the form of a notice of allowance is respectfully requested. Any questions regarding this communication can be directed to the undersigned attorney, Douglas P. Mueller, Reg. No. 30,300, at (612) 455-3804.



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